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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,958	03/23/2004	Jenoe Tihanyi	I434.105.101/IFT976US	2360
7590 Dicke, Billig & Czaja, PLLC Suite 2250 Fifth Street Towers 100 South Fifth Street Minneapolis, MN 55402			EXAMINER PHAM, LONG	
			ART UNIT 2814	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE		
3 MONTHS	02/08/2007	PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/806,958	<b>Applicant(s)</b> TIHANYI, JENOE	
	<b>Examiner</b> Long Pham	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-13 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-13 and 16-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

**New grounds of rejection**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 6, 7, 12, 13, 16, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuhara et al. (EP 1073123).

With respect to claims 1, 4, 5, 6, 7, 12, 13, 16, 17, and 18, Yashuhara et al. anticipate the claimed invention. **See the rejections of office actions dated 08/18/05 and 01/03/06.**

Further with respect to claims 1 and 13 as currently amended, Yashuhara et al. further teach each of the plurality of auxiliary electrodes 14 has relatively similar dimensions in the lateral direction and the second terminal zone 5 and the channel 2 are separated by a distance in a lateral direction. See figs. 1 and 2.

Further with respect to claim 1, Yashuhara et al. further teach the auxiliary electrode has a length (horizontal lines of 14 in fig. 1) and has a cross-section (area 14 of fig. 2), wherein the dimensions (the vertical lines of 14 of fig. 1) of the auxiliary electrode in the cross section extend in a lateral plane that is perpendicular to the length and wherein at least one of plurality of auxiliary electrodes has no dimension in lateral plane that extends substantially beyond any other dimension (any dimension on the lateral plane) in the lateral plane.

Further with respect to claim 13, Yashuhara et al. further teach each auxiliary electrode has a length and each have dimensions (vertical lines of 14 of fig. 1) in the lateral direction, wherein the all the dimensions in the lateral directions

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are substantially smaller than the length (the horizontal line of 14 of fig. 1) and at least one auxiliary electrode extends along its length from the front side through the second layer 6 into the first layer 1 and insulated from the semiconductor body (see fig. 1, 14 extends down (into the paper) along the horizontal lines or length through layer 6 and layer 1 of fig. 4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 10, 19, 9, 11, 20, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuhara et al. (EP 1073123) as applied to claims 1, 4, 5, 6, 7, 12, 13, 16, 17, and 18 above, and further in view of Gajda et al. (US publication 2003/004255), and Omura et al. (EP 1168455) (a newly applied reference, a reference of record).

With respect to claims 8, 10, 19, 9, 11, and 20, Yashuhara et al. in view of Gajda et al. teach the claimed invention. **See the rejections of office actions dated 08/18/05 and 01/03/06.**

With respect to claims 23 and 24, Yashuhara et al. fail to teach that each auxiliary electrode has cylindrical shape.

Omura et al. teach forming auxiliary electrodes having cylindrical shape to achieve high isotropy and planar uniformity. See fig. 22 and paras [0083,0084].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Omura et al. into the device of Yashuhara et al. to attain the above advantage.

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuhara et al. (EP 1073123) in combination with Omura et al. (EP 1168455).

With respect to claim 21, Yashuhara et al. teach a semiconductor component comprising (see figs. 1-20 and associated text):

- a semiconductor body having a first layer 1 of a first conduction type and a second layer 6 of a second conduction type, the second layer applied onto the first layer thereby forming a front side of the semiconductor body;

- a first terminal zone 3 of the second conduction type in the second layer;

- a drift zone 6 of the second conduction type in the second layer;

- a channel zone 2 of the first conduction type formed between the first terminal zone and the drift zone;

- a second terminal zone 5 of the second conduction type, wherein the second terminal zone and the channel zone are separated by a distance in a lateral direction on the front side of the semiconductor body;

- a gate electrode 10, insulated from the semiconductor body and adjacent the channel zone; and

- a plurality of auxiliary electrodes 14 arranged at a distance from one another and each configured in a shape;

- wherein at least one auxiliary electrode extends from the front side through the second layer into the first layer and insulated from the semiconductor body.

Yashuhara et al. fail to teach that each auxiliary electrode has cylindrical shape.

Omura et al. teach forming auxiliary electrodes having cylindrical shape to achieve high isotropy and planar uniformity. See fig. 22 and paras [0083,0084].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Omura et al. into the device of Yashuhara et al. to attain the above advantage.

With respect to claim 22, Yashuhara et al. further teach each of the plurality of auxiliary electrodes have a substantially circular cross-section.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 4-13, and 16-24 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

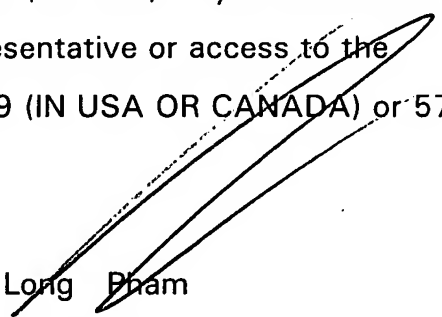
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on Mon-Frid, 10am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Long Pham  
Primary Examiner  
Art Unit 2814

LP